

Q. If a curve passes through the point $(2, \frac{7}{2})$ & has slope $(1 - \frac{1}{x^2})$ at any point (x, y) on it, then the ordinate of the point on the curve whose abscissa is -2 is -

i. $-5/2$

ii. $5/2$

iii. $-3/2$

iv. $3/2$

Given -

$$\frac{dy}{dx} = 1 - \frac{1}{x^2}$$

$$\Rightarrow y = x + \frac{1}{x} + c$$

$(2, \frac{7}{2})$ satisfies the equation

$$\Rightarrow c = 1$$

$$y = x + \frac{1}{x} + 1$$

When $x = -2$.

$$y = -2 - \frac{1}{2} + 1$$

$$= -1 - \frac{1}{2} = -\frac{3}{2}$$

$$y = -\frac{3}{2}$$